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BALANCING CHANGE IN
A DYNAMIC LANDSCAPE

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Exploring Transfer of Development Rights for Managed Retreat in Hawaiʻi

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Goals of Today’s Sess

Learn about…

- How transfer of development rights (TDR) works and can be used
- Research findings on market outcomes of potential TDR programs for managed retreat on O´ahu
- Draft TDR legislation for Kaua‘i
- Considerations for implementation of TDR in urban, rural, and other unique contexts
- Navigating the political context for passing TDR legislation

Source: Brian Garrity, Unsplas

Transfer of Development Rights (TDR)

- Marked-based mechanism that transfers development from "sending areas" to "receiving areas" in a way that would not be possible under existing zoning regulations (Pruetz, 2003)
- Property owners sell development rights to a developer, who uses them to exceed baseline zoning in receiving area (e.g. exceeding floor area ratio)
- Sending area properties conserved with conservation

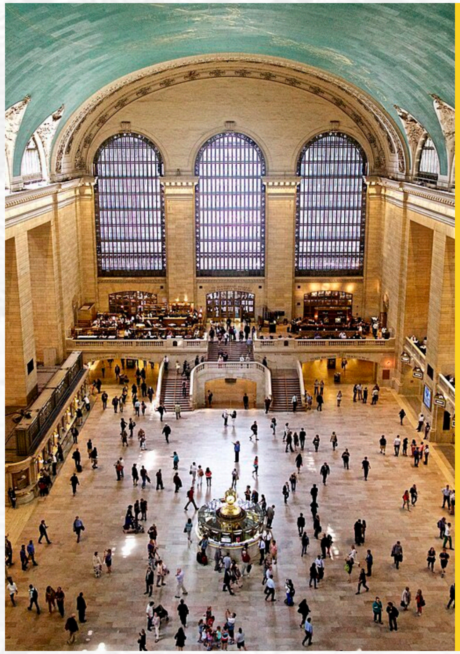
Source: Wikipedia, La Citta Vita

Source: Wikipedia, Idawriter

Transfer of Development Rights (TDR)

TDR has been used for…

- Historic preservation
  - Penn Central Station, NYC
- Preserving agricultural land
  - King County, WA
- Protecting environmental resources
  - Lake Tahoe, CA
- Greenhouse gas mitigation and sequestration
  - Miami-Dade County, FL
- Climate adaptation
  - Ocean City, MD



Source: Wikimedia, Danazar, CC BY-S
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Source: World Atlas

Transfer of Development Rights

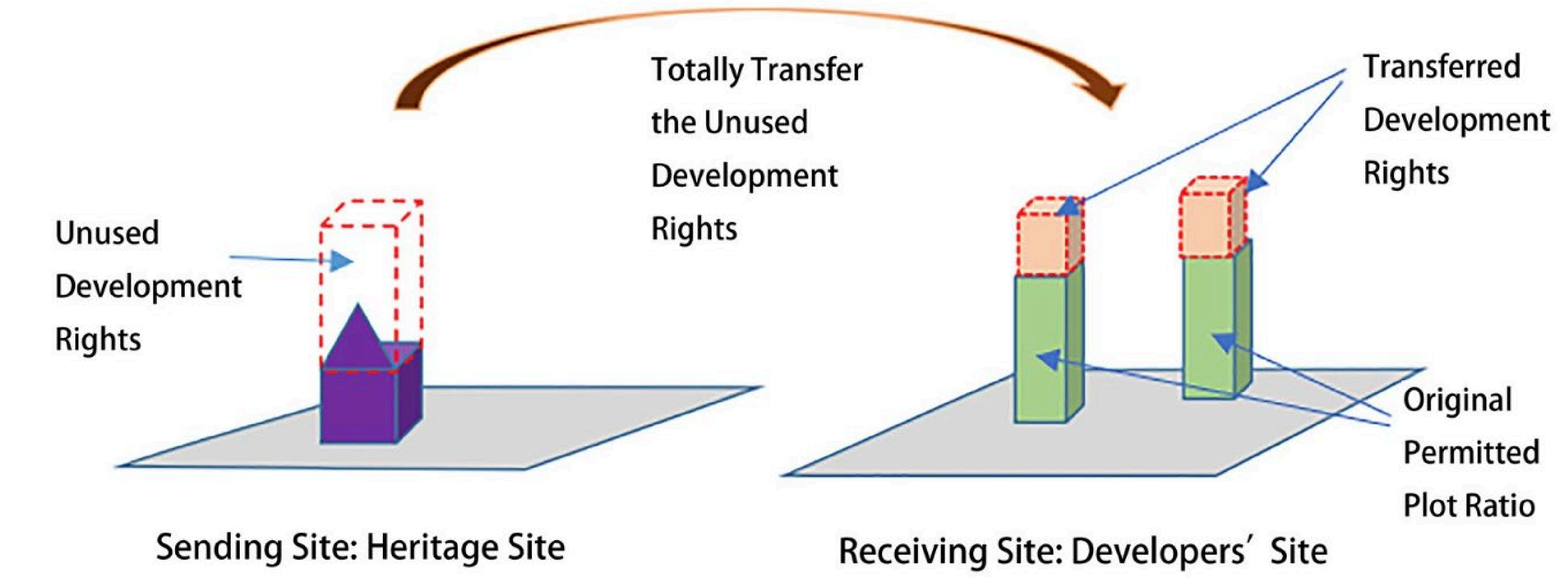
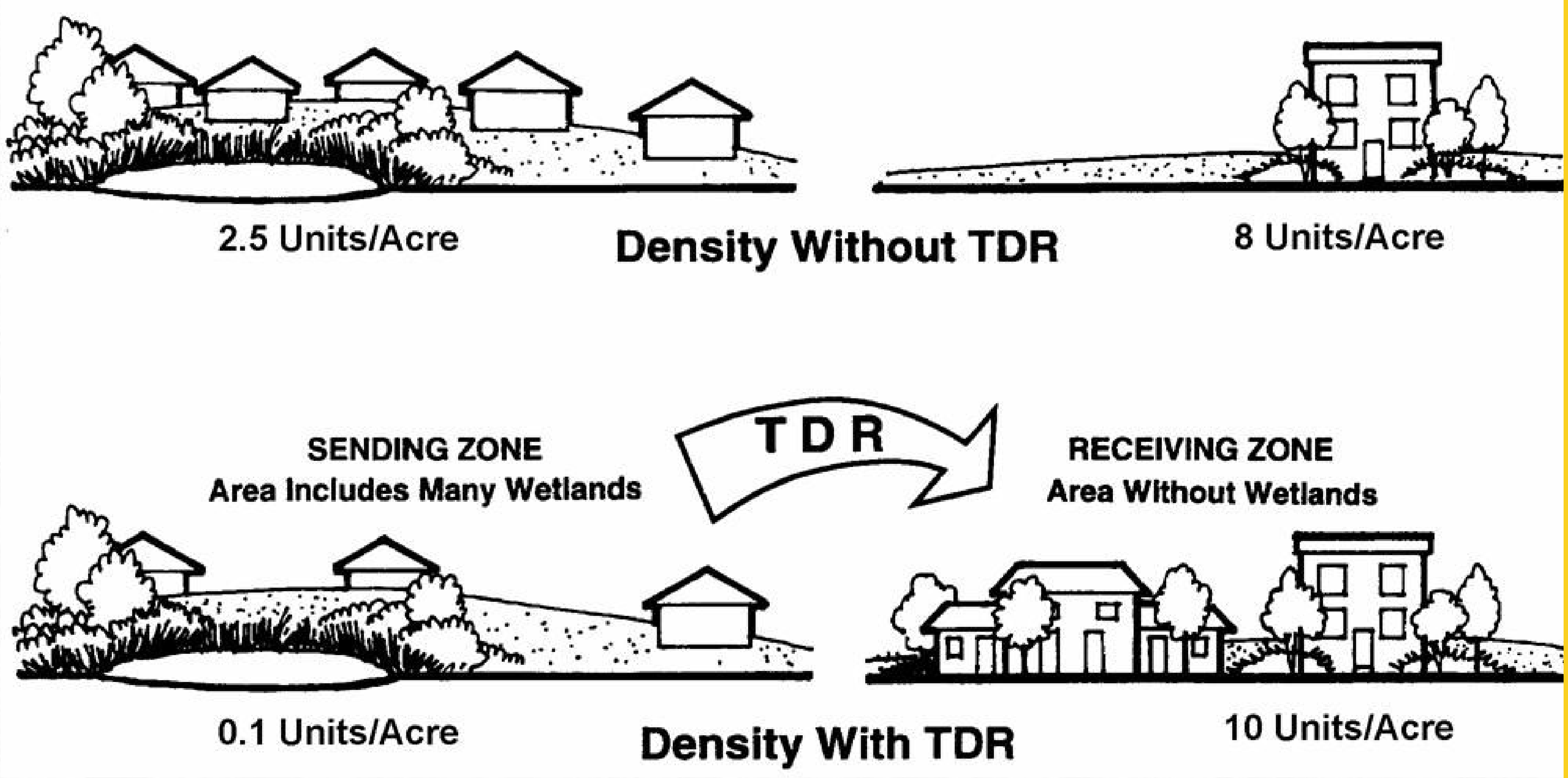


FIGURE 4 Transfer to developer's site. *Source:* by authors

(Hou et al.,

Transfer of Development Rights (TDR)



(Madison-Morgan Conservancy,

Role of Other Agencie

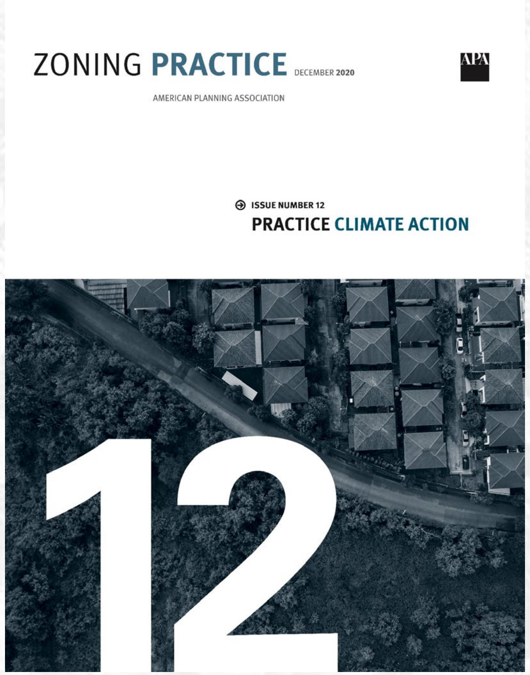
The goals of a TDR program can be aided by…

- TDR Bank
- Conservancy
- Redevelopment agencies
- Other agencies and organizations

Other agencies can assist in educating landowners, purchasing and retiring development rights, and/or facilitating transactions.

TDR Proposed for Managed Retreat

(EPA, 2017)



(Pruetz, 2020)


Managed Retreat Toolkit » Introduction - Georgetown Climate Center https://www.georgetownclimate.org/adaptation/toolkits/managed-retre...

GEORGETOWN CLIMATE CENTER

Managed Retreat Toolkit

Managed retreat, or the voluntary movement and transition of people and ecosystems away from vulnerable coastal areas, is increasingly becoming part of the conversation as coastal states and communities face difficult questions on how best to protect people, development, infrastructure, and coastal ecosystems from sea-level rise, flooding, and land loss. Georgetown Climate Center's new Managed Retreat Toolkit combines legal and policy tools, best and emerging practices, and case studies to support peer learning and decisionmaking around managed retreat and climate adaptation.

Introduction

The impacts of climate change are becoming more apparent and severe, as sea levels rise and the frequency and intensity of extreme weather events increase. Climate change impacts are forcing state and local policymakers to address the risks facing many coastal communities. In addition to undertaking measures aimed at protection (building flood risk reduction structures e.g., levees, hard shoreline armoring devices) and accommodation (building structures to better withstand future flood risk e.g., elevating or flood-proofing structures), coastal governments and communities are increasingly evaluating managed retreat as a potential component of their comprehensive adaptation strategies.

The aim of managed retreat is to proactively move people, structures, and infrastructure out of harm's way before disasters or other threats occur to avoid damage,

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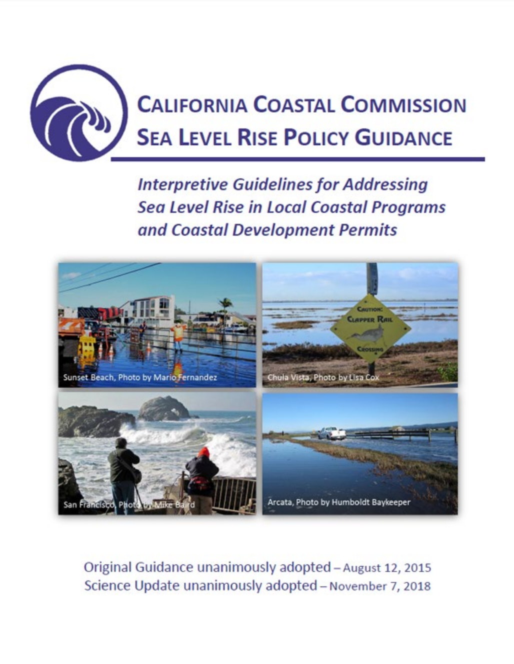
(Georgetown Climate Center, n.d.)



(California Coastal Commission, 2018)

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INSTITUTE for SUSTAINABILITY and RESILIENCE

Economic Considerations for TDR as a Tool for Coastal Managed Retreat
A Case Study for O'ahu

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Need for SLR Response in Hawai‘i

Photo credit: Honolulu Star-Advertiser

Scientists say structures like these destroy beaches. When waves hit the barriers, they claw away at the sand causing beaches to disappear.

Hawaii’s Beaches Are Disappearing

by Ash Ngu, ProPublica, and Sophie Cocke, Honolulu Star-Advertiser, December 29, 2020.

Photo credit: Ronen Zilberman/Civil Beat

Photo credit: Hiroko Kazama

Research Questions

How might a TDR program work on O‘ahu to facilitate managed retreat from vulnerable coastal areas expected to be adversely impacted by SLR?

Would TDR be economically feasible in a hypothetical pilot project focused on the North Shore of O‘ahu?

Using the same North Shore sending area, would TDR be economically feasible in a hypothetical pilot project with a Honolulu-focused receiving area?

Background

TDR Success Factors

Importance	Factor
Essential	Demand (willingness to pay) for bonus development
	Customized receiving areas
Important	Strict sending area regulations
	Few alternatives to TDR
	Market incentives
Helpful	Certainty of TDR Use
	Strong public preservation support
	Simplicity
	Promotion and facilitation
	TDR bank

(Pruetz & Standridge, 2008)

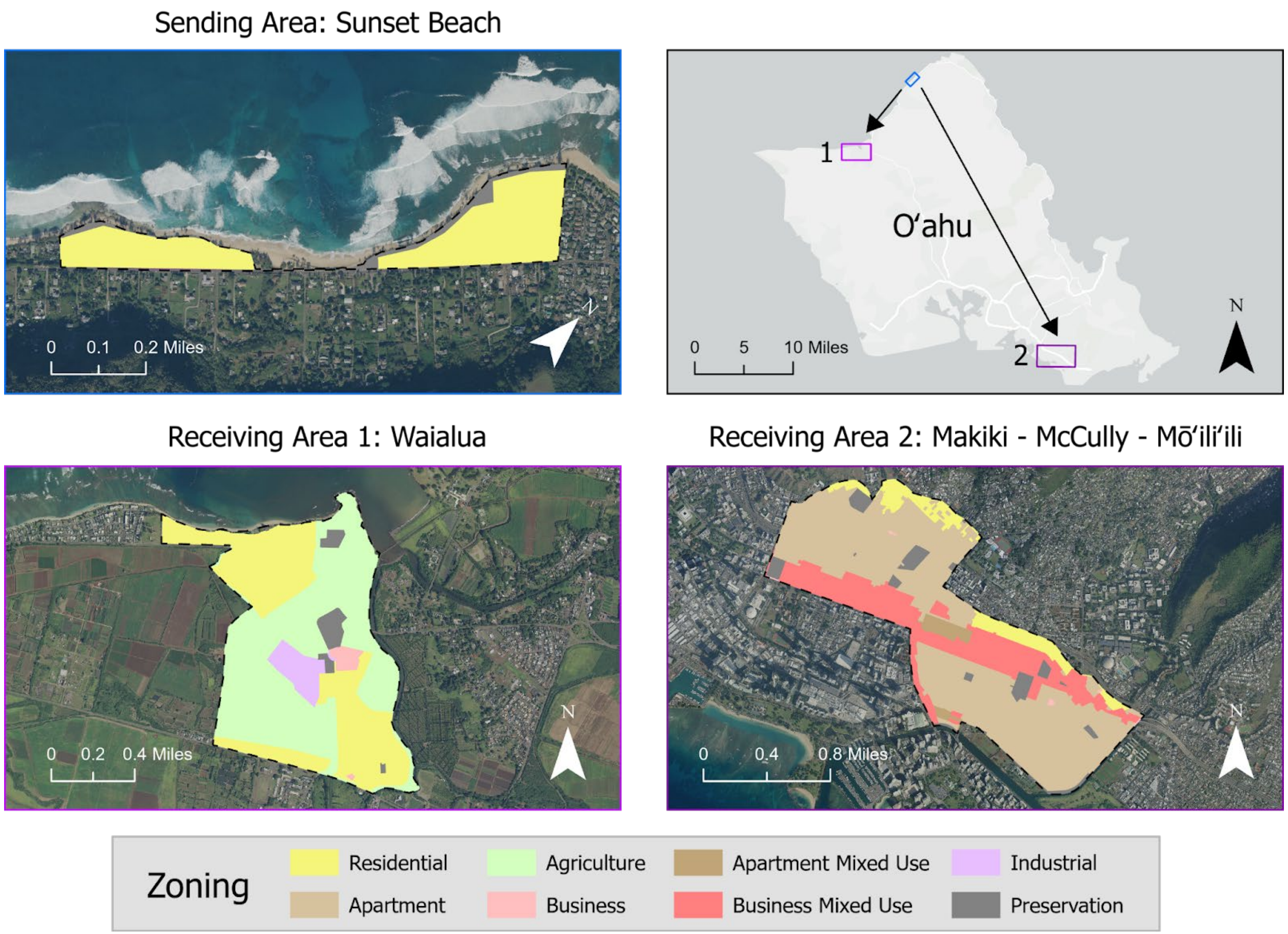
Considerations for TDR in SLR Response

- Many TDR programs fail because developers can achieve their desired density for free (Pruetz & Standridge, 2008)
- TDR programs have not been widely adopted in coastal areas to fund retreat, in part because of the high cost of coastal real estate compared with inland properties (Williams, 2014; Robb et al., 2020)
- “Hybrid” TDR programs from the 2000s onwards often allowed receiving areas in urban fringe, or even rural locations, as a concession to real estate market dynamics and attempt to improve program outcomes (Linkous & Chapin, 2014)

Photo credit: Rickymar Photography

O‘ahu Market Illustrations

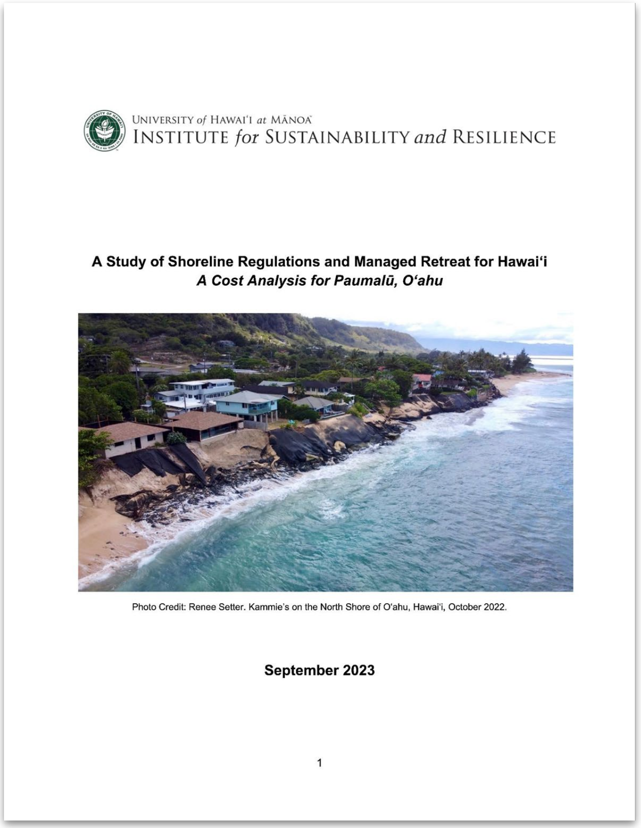
Sending and Receiving Areas



Sending Area Data

Parcels in Paumalū ahupuaʻa

- Parcels in SLR-XA 3.2 ft.
- Data collected and analyzed by ISR research lab, updated with 2023 assessor‘s data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INSTITUTE for SUSTAINABILITY and RESILIENCE

A Study of Shoreline Regulations and Managed Retreat for Hawaiʻi
A Cost Analysis for Paumalū, Oʻahu

Photo Credit: Renee Setter. Kammie's on the North Shore of Oʻahu, Hawaiʻi, October 2022.

September 2023

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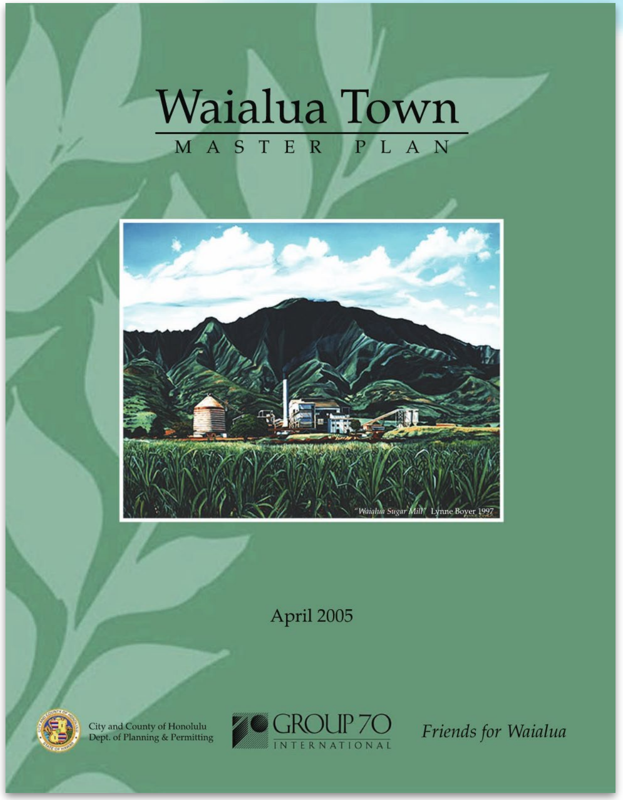
Area	Land and Dwelling Value ($2023)	Dwelling Units
SLR-XA	$250,321,800	97

(Han et al., 2023; retreat framework adapted from Griggs & Reguero, 2021)

NS Receiving Area Selection & Data



Land use concepts from Waialua Town Master Plan (2005)

- Adding more residential development would connect existing residential areas, satisfy a growing need for new housing in Waialua, and broaden the economic base of the town center (DPP, 2005, p. 5-4)

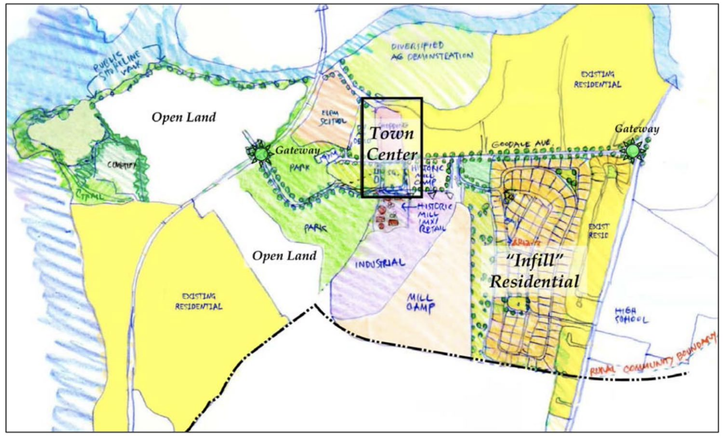


Figure 5-1. Community Residential Infill Concept

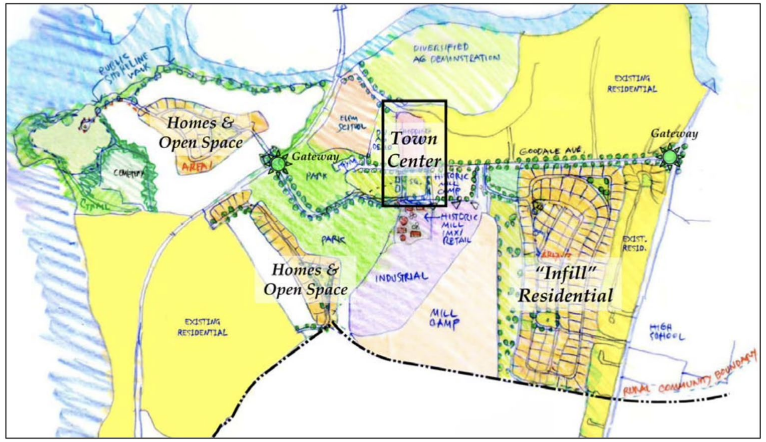


Figure 5-2. Expanded Community Residential Concept

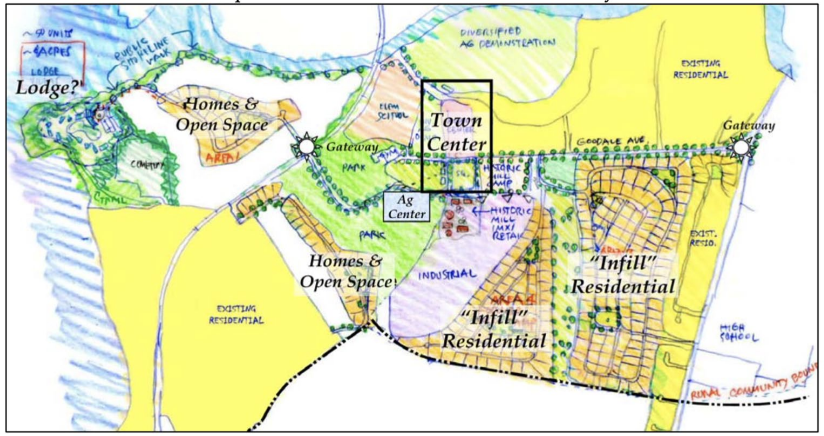


Figure 5-3. Expanded Community Residential with Lodge Concept

NS Receiving Area Concepts & Parcels

Land Use Concept	New Residential Units	Number of Parcels	Acres	Land Value	Building Value	Demo Costs	Total Acquisition/Demo Costs
Community Residential Infill Concept	200	3	53.546	$2,256,630	$426,400	$6,330	$2,689,360
Expanded Community Residential Concept	325	9	132.145	$7,806,230	$426,400	$6,330	$8,238,960
Expanded Community Residential with Lodge	450	9	183.549	$9,397,200	$2,441,000	$550,710	$12,388,910

Note: Calculated using ArcGIS Pro, 2023 City & County of Honolulu assessor's data and RSMeans Online construction estimates.

Honolulu Receiving Area Selection & Data

Makiki/McCully-Mōiliʻili area

- Outside of existing TOD areas and identified for additional residential housing within the PUC Development Plan
    - 1,000-2,500 new units within Makiki
    - 500-750 new units within McCully-Mōiliʻili

Makiki/McCully-Mōiliʻili Receiving Area

- Identify 3,116 local parcels
- Assign current legal FAR to every parcel
- Assign current **built** FAR to every parcel (assessment data)
- Calculate the amount of unused FAR
- Determine whether FAR is a scarce resource

04

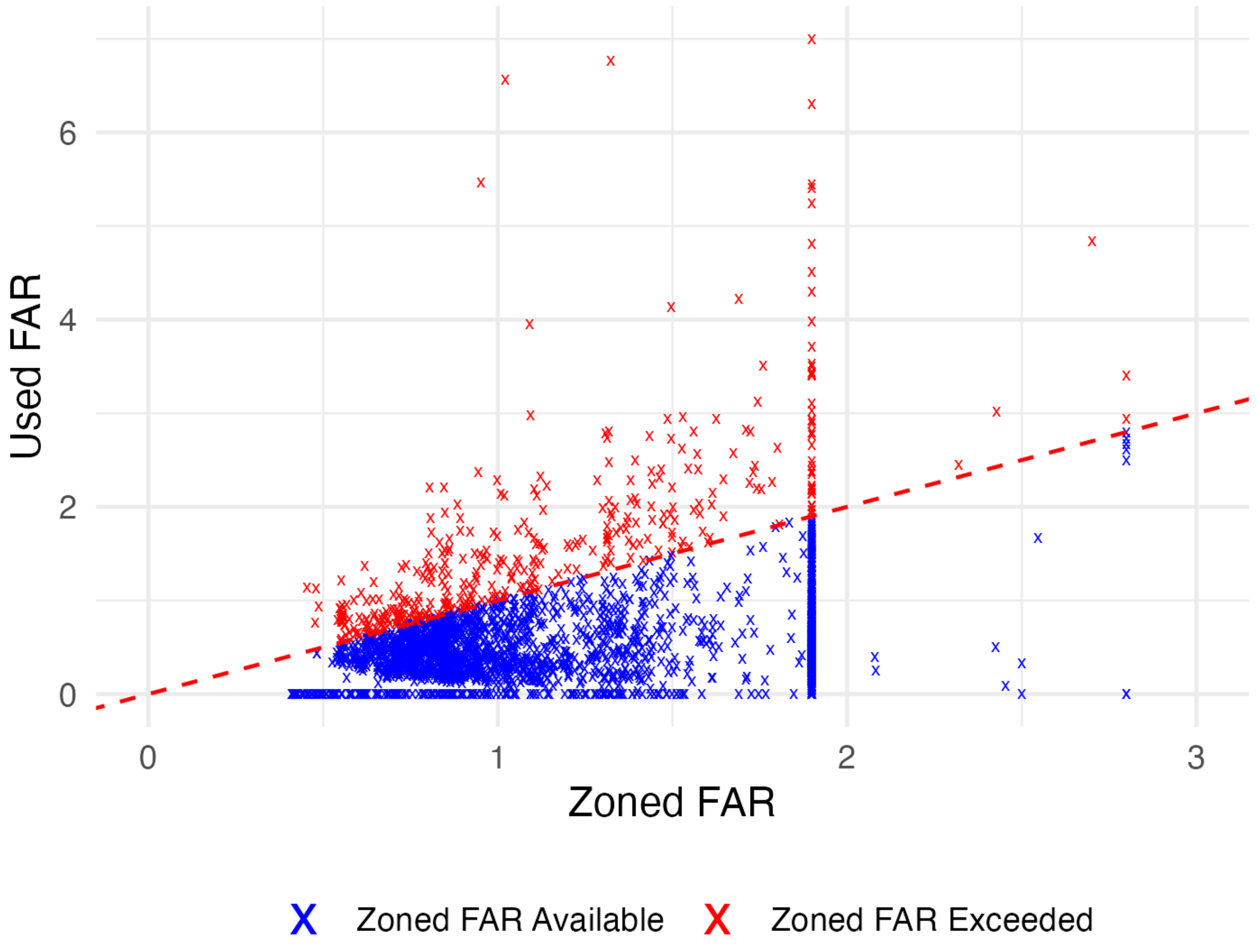
Findings & Conclusion

NS Receiving Area Findings

Receiving Area Concept	TDR Credit Price	Ratio	Total Dev Cost	Total Dev Cost Per Unit	ROI	Net Unit Change
Community Residential Infill	$1,251,609	2.06	$301,263,297	$1,506,316	-30.29%	103
Expanded Community Residential	$770,221	3.35	$333,032,982	$1,024,717	2.47%	228
Expanded Community Residential with Lodge	$556,271	4.64	$363,403,016	$807,562	30.02%	353

Makiki/McCully-Mōiliʻili Receiving Area

- 85% of 3,100 parcels have unused FAR
- Total unused FAR: ~26 million square feet
- Could build ~20,000 new housing units under current FAR
- FAR is not scarce
- However, developers cannot easily use this FAR for many reasons
- Relevant to this study, perhaps because it is spread across many parcels

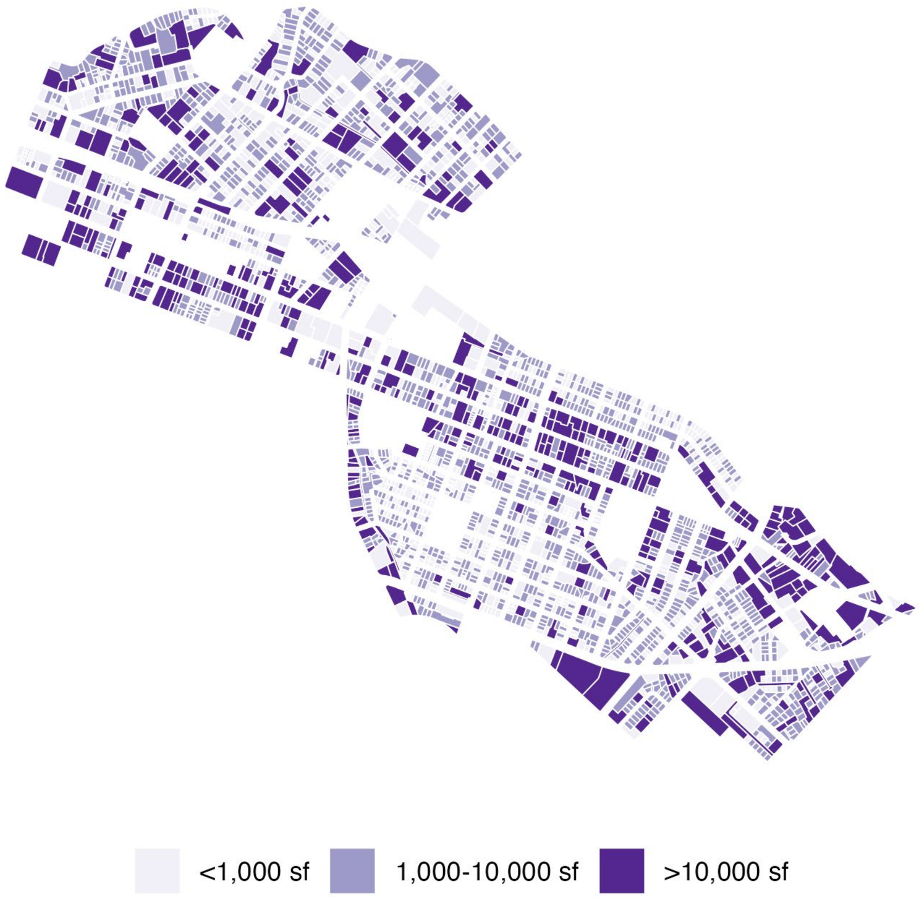


*Graph omits areas zoned FAR 10

Makiki/McCully-Mōiliʻili Receiving Area

- There are 32 parcels that currently have more than 100,000 square feet of unused FAR each (after excluding 28 that are ”public” in use)

Unused Square Footage Under Current FAR, excluding public/quasi-public uses



Market Illustration – Existing Site with Hypothetical Apartment Buildings

89,000 sq ft parcel zoned for mixed use, 150 units (undeveloped)

Receiving Area	TDR Credit Price	Ratio	Total Dev Cost	Total Dev Cost Per Unit	ROI	Net Unit Change
Baseline: 150-Unit Mid-Rise Under Current Zoning	-	-	$70,793,800	$471,959	58.91%	-
TDR: 400-Unit High-Rise	$1,026,487	2.58	$438,415,600	$1,096,039	-31.57%	303
TDR: 800-Unit High-Rise	$394,803	6.70	$631,415,600	$789,270	-4.98%	703
TDR: 37 400-Unit High-Rises	$27,743	95.36	$6,982,992,400	$471,824	58.96%	14,703

Key Findings

- TDR has potential to facilitate managed retreat; however, under limited market conditions
- The two receiving area illustrations demonstrate that TDR will best function when re-zoning (i.e. up-zoning) is included; however, greenfield development is often undesirable for other land use and environmental considerations
- TDR will be difficult to use for the purpose of infill development

Photo credit: Darryl Oumi, special to Honolulu Star-Advertiser

Discussion

- To preserve sandy beaches and minimize risks to public safety, managed retreat should be done in a proactive, coordinated manner; a voluntary TDR program would likely result in patchwork of retreated and unretreated properties
- Other factors besides density/zoning constrict housing development. E.g.:
  - Infrastructure
  - Piecemeal lots
  - Permit delays
- If no private use is desired, consider other mechanisms like land acquisition for managed retreat

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Exploring TDR for Managed Retreat on Oʻahu

Alexander Yee, AICP, Coastal and Water Program Manager, City and County of Honolulu, Office of Climate Change, Sustainability & Resilience

City Goals for Studying TDR

- Facilitate managed retreat
- Minimize regulatory takings liability
- Leverage private capital
- Understand local conditions relevant to feasibility:
  - Development in the SLR-XA
  - Local housing market
  - Existing land use vs. allowed by zoning

TDR Study Takeaways

- Market illustrations – illustrative but not necesarily representative.
- Few examples of TDR used to redirect development out of vulnerable beachfront areas.
- As a whole, additional FAR is currently easy to come by, whether by existing zoning or incentives (e.g. TOD, 201H).
- Demand for TDR may be held back by the same factors that prevent additional development under current zoning: infrastructure, assembling parcels, approval timeline and uncertainty.

Future Research Areas

- Demand for additional FAR by TDR would need to be "by design."
- Better defining receiving areas based on:
  - Zoning district

Zoning Classification	Total unused FAR under current zoning (square feet)
A-1	111,538
A-2	12,293,532
A-3	3,437,663
AMX-2	403,883
B-2	72,395
BMX-3	8,951,904
R-5	778,648
Total	26,049,562

Makiki-McCully-Mōʻiliʻili Receiving Area: Unused FAR by Zoning District.

Future Research Areas

- Demand for additional FAR by TDR would need to be "by design."

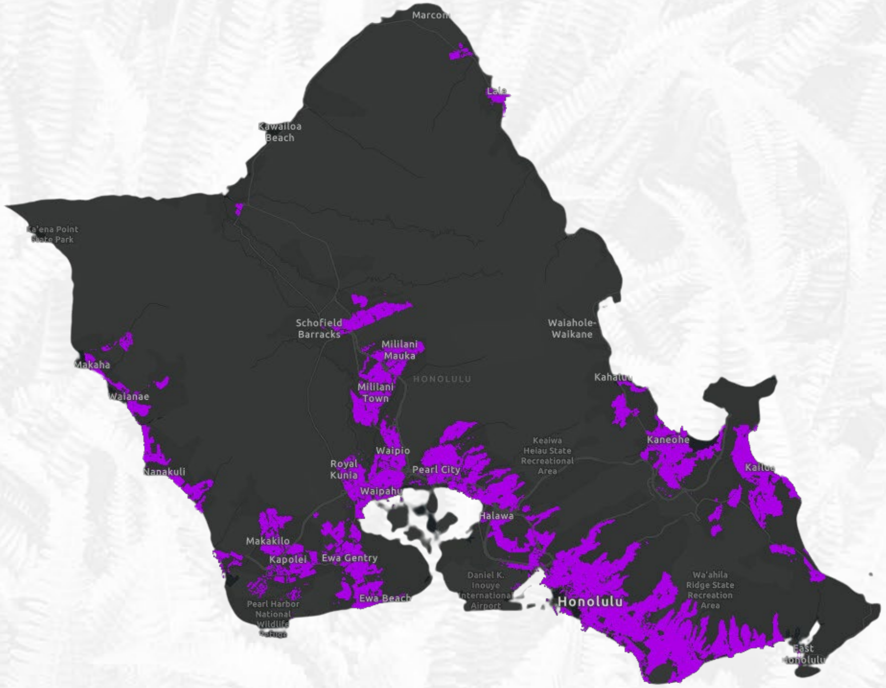
- Better defining receiving areas based on:
  - Zoning district
  - Community Plan Area

Identify "slack" within zoning district within Community Plan Areas. Consider restricting transfers within Community Plan Areas. Community Plan update process could allow community participation on sending/receiving areas.

Future Research Areas

- Demand for additional FAR by TDR would need to be "by design."

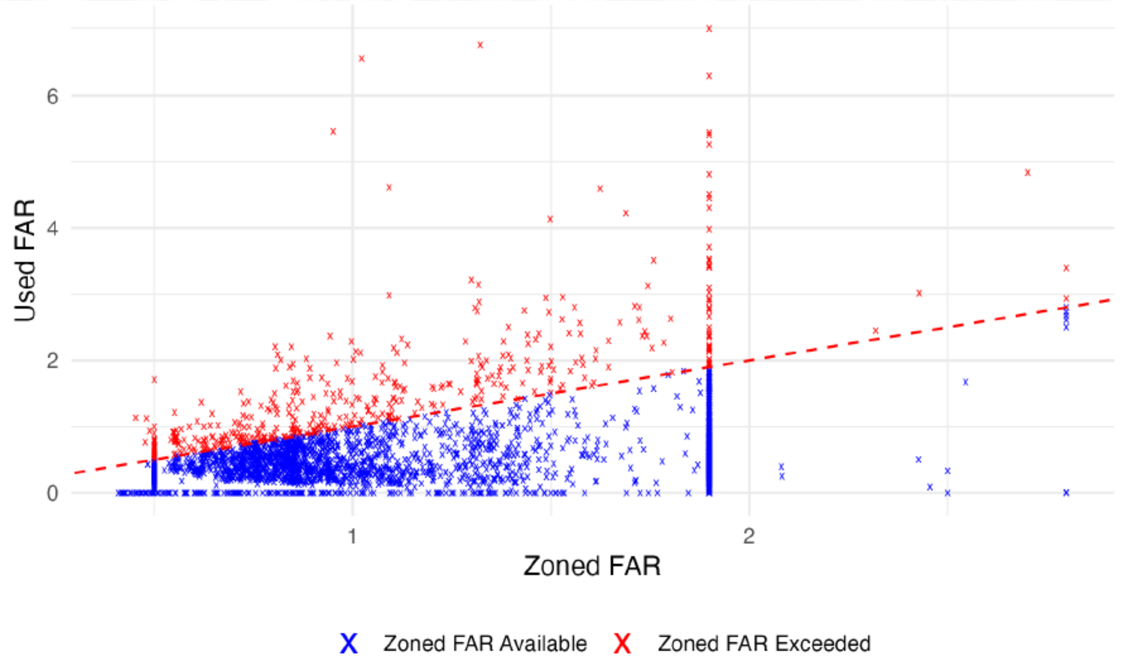
- Better defining receiving areas based on:
  - Zoning district
  - Community Plan Area
  - Availability of infrastructure (ex. Sewer)



Identify sites with/without infrastructure constraints
(ex. Purple = sewer mains)

Thinking Outside the Box

- Alternatives to DR as an FAR Bonus
  - Retention of nonconforming FAR/height
  - Fast-tracking/streamlining/other process-related perk
  - Exclusi



Makiki-McCully-Mōʻiliʻili Receiving Area Currently Available FAR. Each x represents one parcel of land

End of the Line for TDR?

- No.

  But…

- TDR will need to be narrowly tailored to specific need/conditions
- One of many tools in the SLR adaptation toolbox, alongside regulatory, buyouts, leasebacks, life estates, land trusts, etc.
- May look different than TDR programs have in the past.
- **<u>Not</u>** interested in looking at Ag land as receiving areas on Oʻahu.

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Exploring TDR for Managed Retreat on Kauaʻi

Kaʻāina Hull, Planning Director, County of Kauai

Kaua‘i Shoreline Viewer

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Questions?

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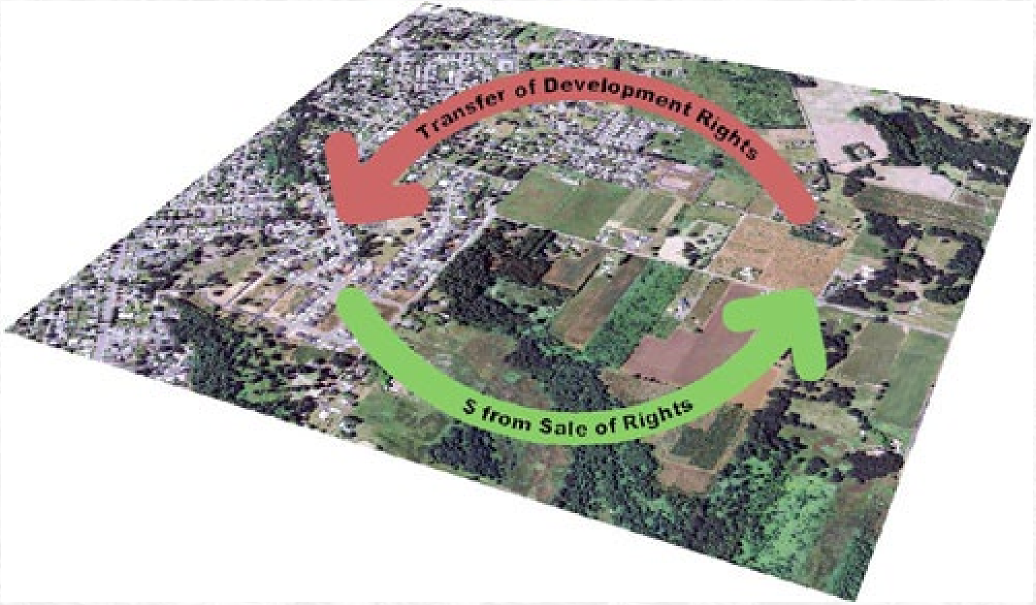
Group Activity

Group Activity

- This game demonstrates transactions between property owners and developers in a voluntary TDR program.
- Landowners in the “sending area” sever the development rights from their properties and sell them to willing buyers (developers), who use them to develop in the “receiving area.”
- Once the development rights are transferred, sending area



Source: Oregon Dept. of Land Conservation and Development

Group Activity

- Players with houses and title deed cards are **property owners.**
    - **Development right price** is listed next to “Houses cost” on title deed card.

- Players with money are **developers.**

Group Activity

Walk around the room and find someone to transact with:

1. **Developers,** pay the property owner for their house(s) for the price listed on their title deed card.
2. **Property owners**, give your house(s) to the developer in return. Then raise your hand for a “city worker” to record the conservation easement on your title deed card with a dot sticker.
3. **Developers,** place your new house(s) in the “receiving area” game board to complete your development.

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Mahalo!